TACSM Abstract

Fasting and Postprandial Glucose Levels after a Single Resistance Training Event in Mexican-Americans

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ABSTRACT

The number of Mexican-Americans diagnosed with diabetes has increased, with 10.2% diagnosed in 2010. Physical activity is an important component to help maintain healthy body weight and composition, and prevent diseases. Previous research has shown that a single event of resistance training can have a positive effect on glucose levels, but little is known about exercise's effect in the Mexican-American population. Therefore, the purpose of this study is to analyze the fasting and postprandial glucose levels after a single resistance training event in Mexican-Americans. IRB approval was granted by Texas A&M University-San Antonio for this study. Fifteen subjects (Age=25.9±3.3 yrs, Ht=165.0±7.7 cm, Wt=71.2±13.5 kg) of Mexican-American ethnicity were recruited at Texas A&M University-San Antonio. A pre-trial training day occurred so that subjects could become familiar with the resistance training procedure. All exercises were completed using the Raptor series stack weights by ProMaxima or the ProMaxima leg sled; abdominal crunches were completed as described by the Fitnessgram®. All subjects completed both a resistance training event (RT) in which subjects completed 8 exercises (3 sets of 8-12 reps, one minute rest between sets, resistance determined at pre-trial) and a non-training event (NT). The order of trials was randomly selected for a counter-balanced design. After the RT, subjects reported to the Human performance lab approximately 14 hours later, having fasted for at least 8 hours. Finger-sticks were used to collect blood samples for glucose analysis. A Cardio Check professional grade meter was used to perform glucose analyses. Subjects were then served a high carbohydrate (1.5 g/kg body weight), high fat (0.25 g/kg body weight) breakfast to consume prior blood sample collection. The NT was performed as described above except subjects did not take part in the resistance protocol prior to the specimen collection, breakfast, and subsequent specimen collection. Glucose area under the curve (AUC) was calculated using a trapezoidal calculation for each subject, for each the RT and NT events. A paired *t*-test was used to compare the means of the NT to the RT glucose AUC. Resistance training AUC (11,960±1,961 mg/dL/min) was significantly less than NT AUC (12,885±1,993 mg/dL/min), $t(14)=-2.193$, $P<0.05$, indicating that a single event of resistance training does affect glucose levels. Although the results reflect an acute response to exercise, promotion of resistance training exercise should be encouraged as a means to prevent chronic diseases and promote a healthy lifestyle.